PATENT ABSTRACTS OF JAPAN

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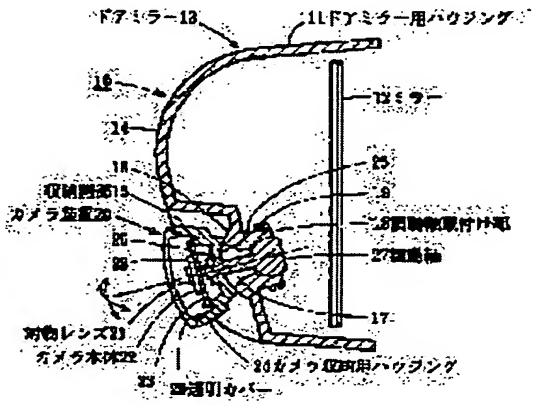
(54) VEHICLE PERIPHERY CONFIRMING DEVICE

(57)Abstract:
PROBLEM TO BE SOLVED: To provide a vehicle periphery confirming device simple in structure and constitution and capable of confirming the state of a front dead angle part, particularly a front wheel part and its peripheral part as well as the rear part of a vehicle body.
SOLUTION: This vehicle periphery confirming device is composed of a rear view mirror 13 fitted to a front door of a vehicle body and provided with a mirror 12 for confirming the side and rear of the vehicle body, and a camera device 20 rotatably fitted into a storage recessed part 15 formed at a back face 14 of a rear view mirror housing 11 on the opposite side to the mirror 12 side of the rear view mirror 13, so as to confirm the front wheel of the vehicle and its peripheral part. An image photographed by the camera device 20 is projected on an image display device disposed at a driver's seat, so as to reduce a dead angle part.



Published Japanese Patent Applications: JP, 2000-62531, A

CLAIMS

[Claim(s)]

[Claim 1] The aforementioned mirror-plane side of the door mirror equipped with the mirror plane for checking the side and the back of this main part of a vehicle attached in the front door of the main part of a vehicle and this door mirror is circumference check equipment for vehicles which consisted of camera equipment attached in the tooth back of an opposite side in order to check a part for a front wheel and the periphery.

[Claim 2] Circumference check equipment for vehicles according to claim 1 characterized by attaching the aforementioned camera equipment in the tooth back of an opposite side free [rotation] with the aforementioned mirror-plane side of the aforementioned door mirror.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[The technical field to which invention belongs] this invention relates to the circumference check equipment for vehicles which can check the situation of the portion which usually serves as a dead angle of a front wheel and the circumference of it.

[0002]

[Description of the Prior Art] First, the circumference check equipment for vehicles of the conventional technology is explained, referring to drawing 4 . Drawing 4 is the plan showing the check range for the method periphery of left-hand side of the main

part of a vehicle by the circumference check equipment for vehicles of the conventional technology.

[0003] As one of the circumference check equipment of the conventional vehicles 1, the door mirror 4 attached in the front door 3 of the lateral portion of the main part 2 of a vehicle has spread most now. As the circumference check range of the main part 2 of a vehicle by this door mirror 3 was shown in drawing 4 , it stops at the field of view shown with the side of a portion in which the door mirror 4 is attached, and the slash C of the back portion, and the amount of [directly under / of the door mirror 4 seen from Driver P / and a front wheel especially the forward left ring seen from the driver P of the right driver's seat 7 or the forward right ring especially seen from the driver P of the left driver's seat 7, and] the periphery

[0004]

[Problem(s) to be Solved by the Invention] As what supervises such a dead angle, conventionally, although there were some which attached small Myra 6 in fender 5 portion, and measured the improvement of the aforementioned dead angle, only to the portion shown with Slash B, the field of view of surveillance has not been improved but it was able to supervise from a part for a front-wheel portion and the periphery to the direction of the front.

[0005] this invention tends to solve these technical problems, and is simple for structure and composition, and not only the back section of the main part of a vehicle but the check of a situation covering a part for a front dead angle portion especially a front-wheel portion, or the periphery is aimed at obtaining the possible circumference check equipment for vehicles.

[0006]

[Means for Solving the Problem] Therefore, with the circumference check equipment for vehicles of this invention, the aforementioned mirror-plane side of the door mirror equipped with the mirror plane for supervising the side and the back of the main part of a vehicle attached in the front door of the main part of a vehicle and its door mirror was constituted from camera equipment attached in the tooth back of an opposite side in order to supervise a part for a front wheel and the periphery, and has solved the aforementioned technical problem.

[0007] Therefore, according to this invention, the side and the back portion of the main part of a vehicle can also supervise the situation of the direction of the front further a part for the front wheel seen from the thing of a non-theory, and Driver P, and its periphery, and by rotating the aforementioned camera equipment if needed.

[0008]

[Embodiments of the Invention] Hereafter, the vehicles equipped with the circumference check equipment of the operation gestalt of this invention are explained, referring to drawing. Drawing 1 is the plan showing the surveillance range for the method periphery of left-hand side of the vehicles equipped with the circumference check equipment of the operation gestalt of this invention, and its main part of a vehicle, and the circumference check equipment of the vehicles which showed drawing 2 to drawing 1 is an expansion perspective diagram a part, and drawing 3 is the cross section showing the attaching structure of the camera equipment of the circumference check equipment shown in drawing 2 . In addition, the same sign is attached and explained to the same component as the component of the vehicle 1 of the conventional technology, and its circumference check equipment.

[0009] First, the composition of the circumference check equipment for vehicles of the operation gestalt of this invention (it is only hereafter written as "circumference check equipment") and its structure are explained, referring to drawing 1 or drawing 3 . In drawing 1 , a sign 10 points out the circumference check equipment of the operation gestalt of this invention attached in the front door 3 of a vehicle 1. The door mirror 13 by which this circumference check equipment 10 was attached in the hinge region side of the front door 3 of the main part 2 of a vehicle, and the housing 11 for door mirrors was equipped with the mirror 12 (drawing 3), With the mirror-plane side of the aforementioned mirror 12 of the door mirror 13, at the tooth back 14 of the aforementioned housing 11 for door mirrors of an opposite side It was attached in order to supervise a part for the front wheel (un-illustrating) of a vehicle 1, and the periphery, for example, it consists of camera equipment 20 which consists of solid state image pickup devices, such as CCD. And for example, the output side of this camera equipment 20 is arranged by about seven driver's seat in the aforementioned main part 2 of a vehicle, it connects with the display unit 30 (drawing 1) of a liquid crystal display panel, and it displays the image photoed with the aforementioned camera equipment 20.

[0010] As shown in drawing 2 and drawing 3 , as for the aforementioned camera equipment 20, it is desirable to attach in the nose-of-cam lower part section of the tooth back 14 of the housing 11 for door mirrors of a door mirror 13 which is separated from the main part 2 side of a vehicle of the housing 11 for door mirrors as much as possible free [rotation]. Change into an electrical signal the light figure which carries out incidence through an objective lens 21, for example, the camera equipment 20 attached in the receipt crevice 15 of the nose-of-cam lower part section free [rotation] is CCD (Chaege CoupledDevice). It has the main part 22 of a

camera which consists of a solid state image pickup device [like], and a video signal is sent out to the aforementioned display unit 30 currently arranged by the aforementioned driver's seat 7 through a non-illustrated harness. These objective lenses 21 and the main part 22 of a camera mind the anchoring [an electronic-circuitry substrate-cum-] substrate 23, and are being contained and fixed to the interior of the housing 24 for camera receipt.

[0011] The aforementioned housing 24 for camera receipt is formed with the cup-like structure where the configuration of the receipt crevice 15 of the aforementioned housing 11 for door mirrors was met, and the breakthrough 26 equipped with the semi-sphere-like concave surface which attaches, attaches from a crevice 25 and its base center section, and is penetrated to a crevice 25 is formed in the rear face of the base. At the pars basilaris ossis occipitalis of one aforementioned receipt crevice 15, the equipped with convex of aforementioned semi-sphere and shape of semi-sphere with almost same diameter funnel [which opening opens in the core at a convex side by attaching, and projecting and forming heights 16 in the receipt side of camera equipment 20 / with a comparatively large diameter]-like breakthrough 17 is formed conversely. Furthermore, the sliding shaft anchoring section 18 which consists of a cylinder-like frame which follows the crevice and this inner skin of a semi-sphere side, and which was mostly equipped with the cylinder side is formed in the rear face of these anchoring heights 16 again.

[0012] In the anchoring crevice 25, it doubles and the aforementioned housing 24 for camera receipt is attached in the anchoring heights 16 of the aforementioned receipt crevice 15 so that each breakthrough 26 and breakthrough 17 may be in agreement, and it inserts the sliding shaft 27 with which the head is spherically formed in both the breakthroughs 17 and 26 from a mirror 12 side, is attached, and is bound tight and attached with the nut 28 from the housing 24 inside for camera receipt of a crevice 25. Then, the main part 22 of a camera and the anchoring [an electronic-circuitry substrate-cum-] substrate 23 are fixed in the housing 24 for camera receipt, and the transparent covering 29 closes front opening of the housing 24 for camera receipt. The peripheral face of the aforementioned sliding shaft anchoring section 18 is bound tight with the ring-like spring 19. The circumference check equipment 10 of the operation gestalt of this invention consists of such structures.

[0013] Therefore, by sliding the front face of the anchoring heights 16 of the receipt crevice 15 of the housing 11 for door mirrors on the anchoring crevice 25 of the housing 24 for camera receipt centering on the aforementioned sliding shaft 27, camera equipment 20 can be rotated free vertically and horizontally, as the arrow

showed to drawing 3 . If the transport unit which transmits the power of an electric motor (un-illustrating) to the aforementioned rotation structure of this camera equipment 20 is made to connect, Driver P can control the rotation angle of camera equipment 20 from a driver's seat 7.

[0014] Therefore, to drawing 1 , Driver P can spread the field of view of this vehicle 1, as camera equipment 20 was controlled, it could check the front wheel of a vehicle 1, and the situation for the periphery when turning camera equipment 20 to the bottom of front slant if needed, and the sight of the direction of the front can be checked every moment and Slash A showed it, when turning on stream and camera equipment 20 ahead. Furthermore, usually, door mirror 13 itself is electric from a driver's seat 7, and since not only an opening-and-closing angle on either side but an elevation angle is controllable, if door mirror 13 itself is turned to the bottom of slant, it can check the situation much more directly under [of a door mirror 13] anchoring with the aforementioned camera equipment 20 again.

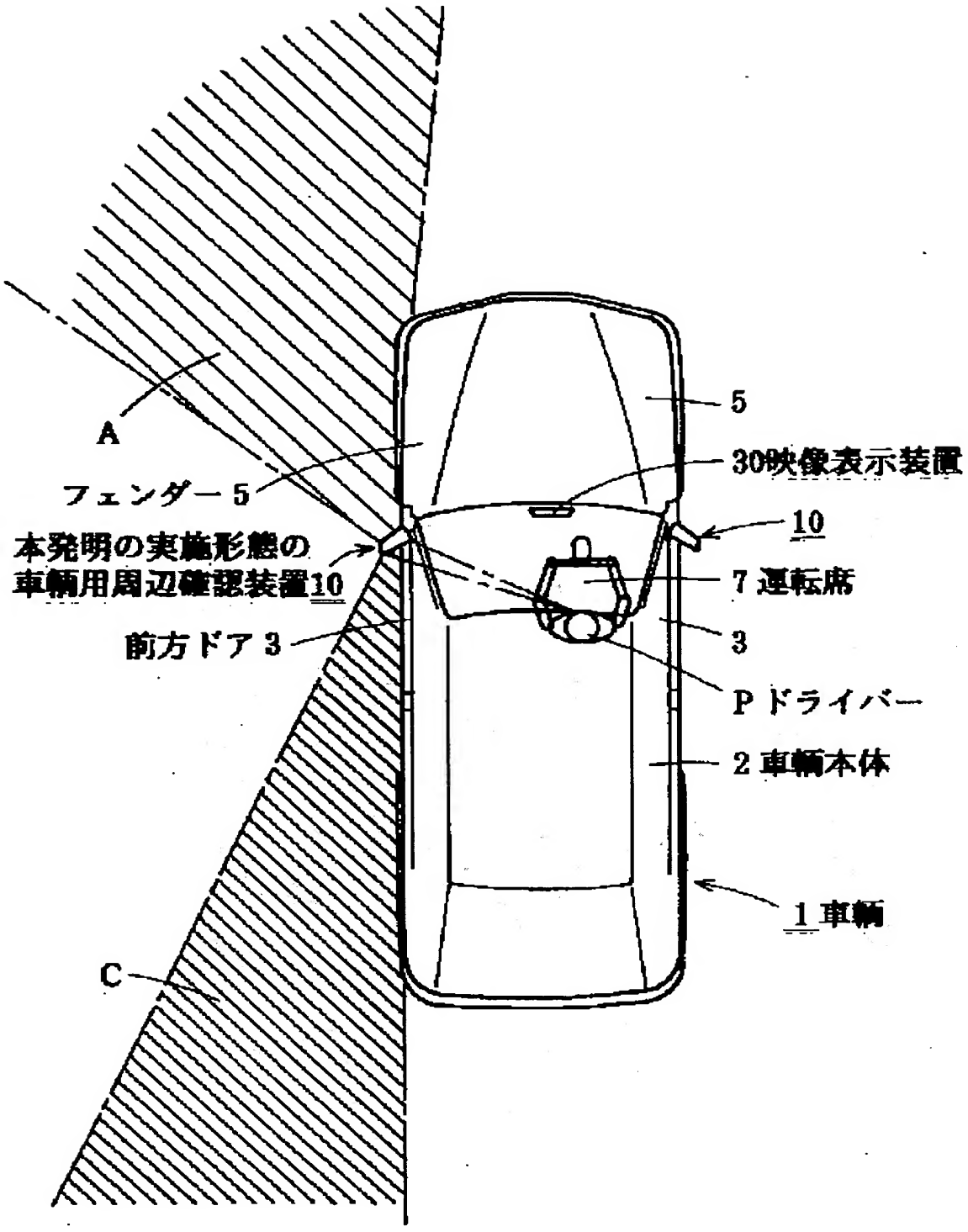
[0015] Although the aforementioned operation gestalt illustrated and explained the circumference check equipment 10 which can check the dead angle directly under a left-hand side fender of the vehicle 1 of a right-hand drive especially (surveillance), since the amount of [a left-hand side front wheel and] the periphery also becomes a dead angle even if it is the vehicle 1 of a right-hand drive, it cannot be overemphasized that the circumference check equipment of this invention is applicable also to the door mirror 13 on the right-hand side of a vehicle 1. Furthermore, it adds that the circumference check equipment of this invention is applicable similarly also about the vehicle of a left-hand drive.

[0016]

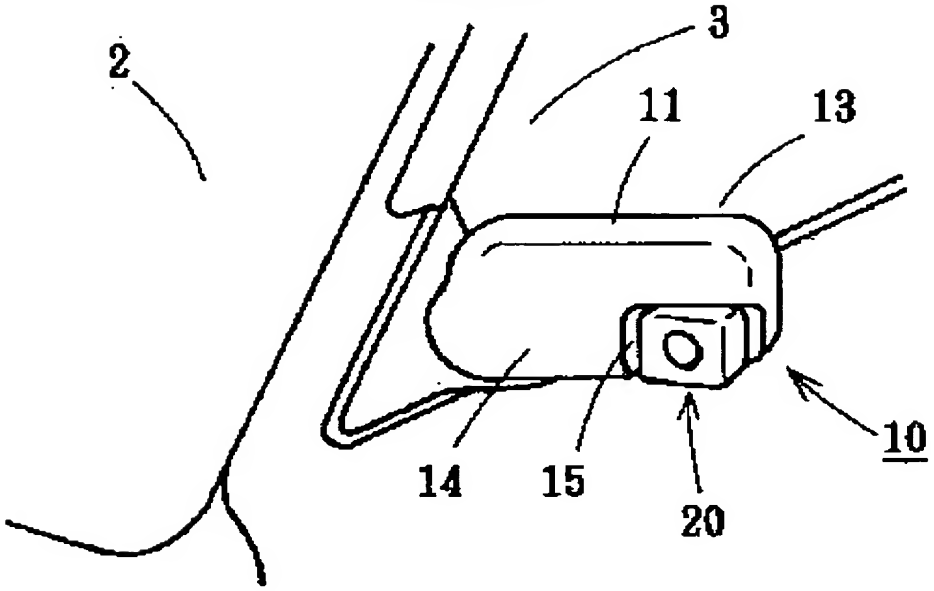
[Effect of the Invention] According to the circumference check equipment for vehicles of the operation form of this invention, not only the situation ahead of a vehicle but the situation for the situation under front slant especially a front wheel, and the periphery can be checked, a dead angle can be decreased successively, a field of view can be expanded, and a safety operation can be performed so that clearly from the above explanation.

DRAWINGS

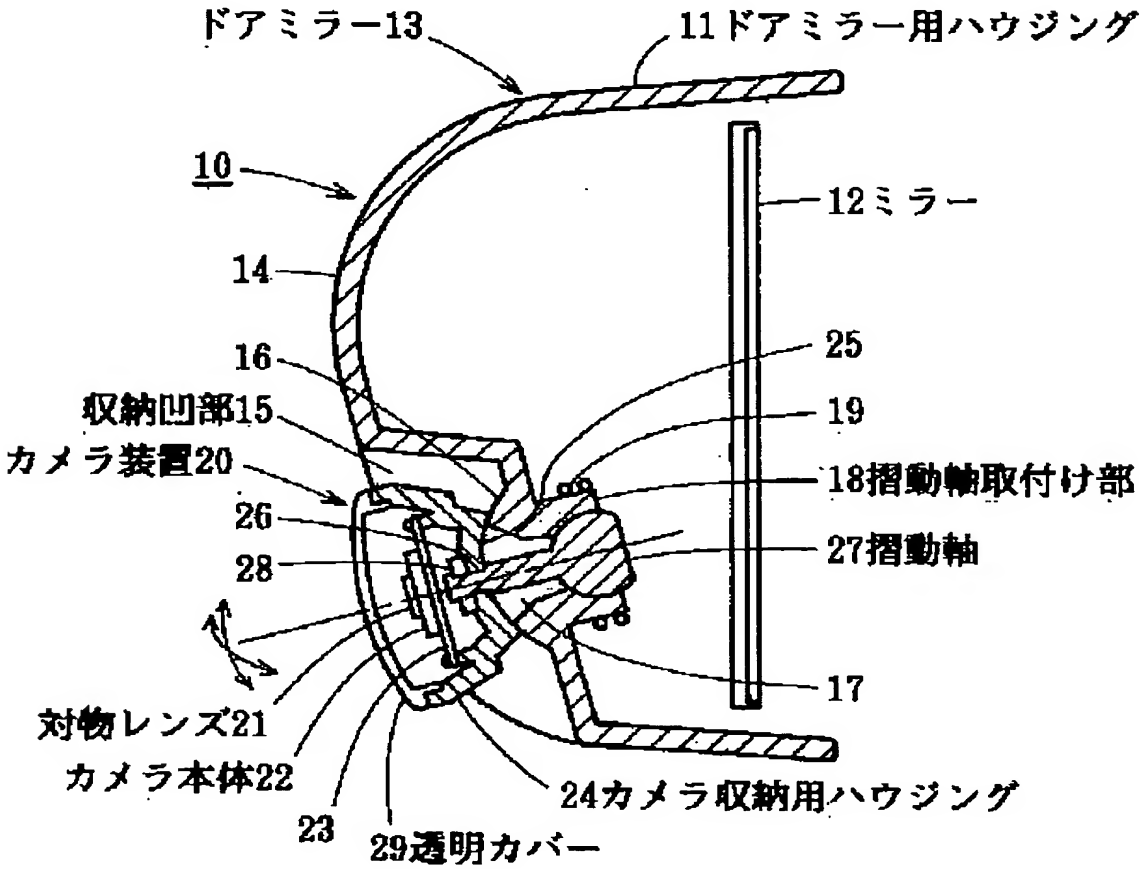
[Drawing 1]


A
フェンダー5
本発明の実施形態の
車輌用周辺確認装置10
前方ドア3
C
5
30映像表示装置
10
7運転席
3
Pドライバー
2車輌本体
1車輌

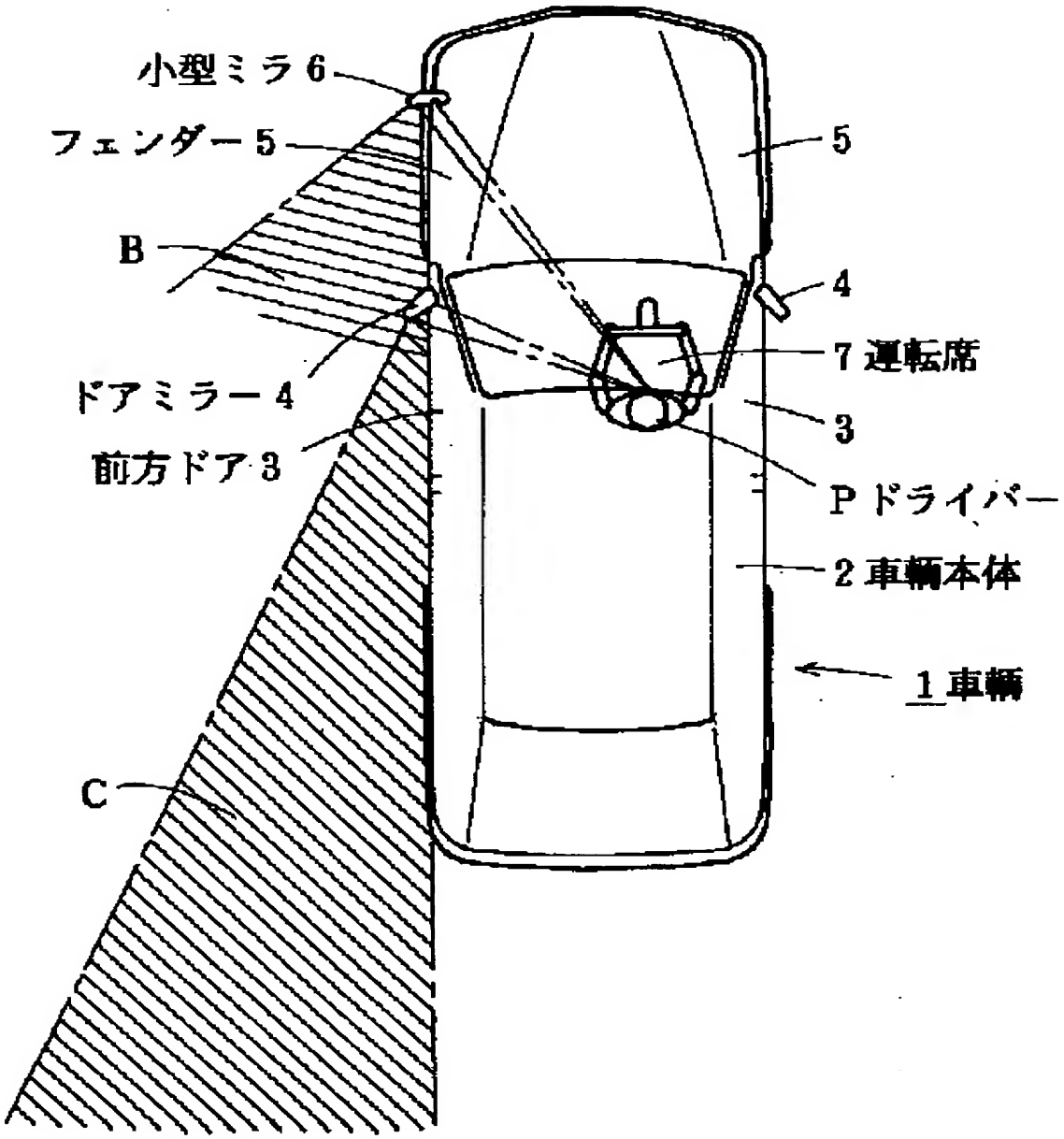
[Drawing 2]



[Drawing 3]



[Drawing 4]



DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the plan showing the surveillance range for the method periphery of left-hand side of the vehicles equipped with the circumference check equipment of the operation gestalt of this invention, and its main part of a vehicle.

[Drawing 2] some circumference check equipments of the vehicles shown in drawing 1 -- it is an expansion perspective diagram

[Drawing 3] It is the cross section showing the attaching structure of the camera equipment of the circumference check equipment shown in drawing 2 .

[Drawing 4] It is the plan showing the surveillance range for the method periphery of left-hand side of the vehicles equipped with the circumference check equipment of the conventional technology, and its main part of a vehicle.

[Description of Notations]

1 [-- 4 A front door 13 / -- A door mirror, 5 / -- Fender,] -- A vehicle, 2 -- The main part of a vehicle, 3 7 [-- Housing 11 and 12 for door mirrors / -- Mirror,] -- A driver's seat, 10 -- The circumference check equipment for vehicles of the operation gestalt of this invention, 11 14 [-- Anchoring heights,] -- The tooth back of the housing 11 for door mirrors, 15 -- A receipt crevice, 16 17 26 [-- Ring-like spring,] -- A breakthrough, 18 -- The sliding shaft anchoring section, 19 20 [-- The main part of a camera, 23 / -- An anchoring / an electronic-circuitry substrate-cum-/ substrate, 24 / -- Housing for camera receipt, 25 / -- An anchoring crevice, 27 / -- A sliding shaft, 28 / -- A nut, 29 / -- Transparent covering, P / -- Driver] -- Camera equipment, 21 -- An objective lens, 22